Remarks

Allowance of all claims is respectfully requested. Claims 1-16, 18-30 & 32-38 remain pending.

<u>35 U.S.C. §112:</u>

The final Office Action presents a 35 U.S.C. §112, first paragraph, rejection to claims 1, 18 & 32 as allegedly failing to comply with the written description requirement. This rejection is respectfully, but most strenuously, traversed and withdrawal thereof is requested.

A decision of whether an invention has been sufficiently enabled requires determination of "whether one reasonably skilled in the art could make or use the invention from disclosures in the patent coupled with information known in the art without undue experimentation." <u>United States v. Telectronics, Inc.</u>, 827 F.2d 778, 785; U.S.P.Q.2d 1217, 1223 (Fed. Cir. 1988). Further, a patent need not teach, and preferably omit, what is well known in the art. <u>In ew Buchner</u>, 929 F.2d 660, 661; 10 U.S.P.Q.2d 1331, 1332 (Fed. Cir. 1991); <u>Hybritech, Inc. v. Monoclonal Antibodies, Inc.</u>, 802, F.2d 1367, 1384; 231 U.S.P.Q. 81, 94 (Fed. Cir. 1986), *Cert. Denied*; 480 U.S. 947 (1987); and <u>Lindemann Maschinenfabrik GMBH v. American Hoist & Derrick Co.</u>, 730 F.2d 1452, 1463; 221 U.S.P.Q.2d 481, 489 (Fed. Cir. 1984).

If a statement of utility in the specification contains within it a connotation of how to use, <u>and/or</u> the art recognizes that standard modes of administration are known and contemplated, 35 U.S.C. §112 is satisfied (emphasis added). <u>In re Johnson</u>, 282 F.2d 370, 373; 127 U.S.P.Q. 216, 219 (CCPA 1960); <u>In re Hitchings</u>, 342 F.2d 80, 87; 144 US.P.Q. 637, 643 (CCPA 1965); and <u>In re Brana</u>, 51 F.2d 1560, 1566; 34 U.S.P.Q.2d 1437, 1441 (Fed. Cir. 1993).

Moreover, the Manual of Patent Examining Procedure (MPEP) §2164.03 states:

> The more that is known in the prior art about the nature of the invention, how to make, and how to use the invention, and the more predictable the art is, the less information needs to be explicitly stated in the specification.

> ...

The "predictability or lack thereof" in the art refers to the ability of one skilled in the art to extrapolate the disclosed or known results to the claimed invention.

...

Accordingly, what is known in the art provides evidence as to the question of predictability.

Applicants respectfully submit that both judicial decisions and the MPEP are counter to the Examiner's position with respect to the adequacy of disclosure of the present invention. Further, the Examiner has not shown a reasonable basis for questioning the adequacy of disclosure to enable a person of ordinary skill in the art to make and use the claimed invention. The specification is in compliance with the enablement requirement of 35 U.S.C. §112, first paragraph, since the specification discloses a parallel look-ahead encode system in FIG. 6, wherein an imbedded controller 630 implements the processing of FIG. 7. Since the imbedded controller 630 is implementing the logic of FIG. 7, the functions described therein are necessarily "automatic" as would be understood in the art. That is, one of ordinary skill in the art understands that a controller or processor implementing software proceeds automatically through the instructions of the software or logic.

Paragraph [0057] of the specification states, in part:

FIG. 7 is a high level flowchart of one embodiment of processing implemented by, for example, controller 630 of encode system 600 of FIG. 6. ...

Paragraph [0060] of the specification further states, in part:

... If the objective is unmet, then the controller adapts at least one encode parameter in one or more of the parallel encoders 750 with the goal of meeting the objects with the next selected set of encode parameters.

Since the specification teaches that the controller implements the logic of FIG. 7, and teaches that when the objective is unmet, that the controller adapts at least one encode parameter in the one or more of the parallel encoders with the goal of meeting the objective with the next selected set of encode parameters, Applicants submit that the specification discloses the invention in a manner sufficient for one of ordinary skill in the art to understand the "automatic"

nature of the adaptation performed by the controller. The logic of FIG. 7 is a software flowchart as can be understood from a reading of the specification, as well as from paragraph [0070], which indicates that one or more program of instructions executable by the machine may be provided to perform the capabilities of the present invention.

In view of the above, and since the Examiner has provided no reasonable basis for questioning the enablement provided for the claimed invention, Applicants respectfully submit that one of ordinary skill in the art could make and use the claimed invention from the disclosure in the specification, and that the pending claim language is fully supported by the application as filed. Applicants submit that the adequacy of disclosure of the present invention is supported by both judicial decisions and the MPEP, as well as the level of understanding of a person of ordinary skill in the art. Should the Examiner request, Applicants can submit one or more Declarations by persons skilled in the art in support of the patentability of the invention addressing the alleged enablement issue raised by the Examiner in the final Office Action. Based on the foregoing, reconsideration and withdrawal of the 35 U.S.C. §112, first paragraph, rejection to claims 1, 18 & 32 is respectfully requested.

35 U.S.C. §102(e):

In the final Office Action, claims 1-16, 18-30 & 32-38 were rejected under 35 U.S.C. §102(e) as being anticipated by Boroczky et al. (U.S. Patent No. 6,859,496 B1; hereinafter Boroczky). This rejection is respectfully, but most strenuously, traversed and reconsideration thereof is requested.

Applicants request reconsideration and withdrawal of the anticipation rejection on the following grounds: (1) the final Office Action has misinterpreted the teachings of Boroczky, thus voiding the basis for the rejection; (2) the Boroczky patent fails to disclose Applicants' claimed invention; (3) the Boroczky patent itself lacks any teaching, suggestion or incentive for its further modification as necessary to achieve Applicants' recited invention; (4) the Boroczky patent, to the extent characterized in the final Office Action, is a hindsight reconstruction of the claimed invention using Applicants' own disclosed subject matter; and (5) the final Office Action fails to state a *prima facie* case of anticipation against Applicants' dependent claims 2-16, 19-30 & 33-38 based on Boroczky.

In one aspect, Applicants' invention is directed to a system for encoding a sequence of video frames (e.g., claim 1). The system includes multiple encoders connected in parallel, each encoder receiving the sequence of video frames for encoding thereof. Further, each encoder employs a set of encode parameters, with at least one encode parameter of the sets of encode parameters being varied between at least two encoders of the multiple encoders connected in parallel. The system further includes a controller coupled to the multiple encoders for selecting one set of encode parameters from the sets of encode parameters which best meets an encode objective, and means for outputting a bitstream of encoded video data encoded from the sequence of video frames using the one set of encode parameters. The system further includes means for automatically adapting an encode parameter in the one or more encoders of the multiple encoders when no set of the encode parameters of the sets of encode parameters employed by the multiple encoders produces an encoded result which meets the encode objective. This automatic adapting allows for optimization of the set of encode parameters for use in encoding the sequence of video frames should one of the sets of encode parameters employed by the multiple encoders not meet the encode objective.

The commonly assigned Boroczky patent discloses a control strategy for dynamically encoding multiple streams of video data in parallel for multiplexing onto a constant bit-rate channel. The control strategy allows individual encode bit-rates to be dynamically adjusted for each video data stream based in part on relative complexity of the multiple streams of video data, as well as fullness of compressed video data buffers and a channel buffer coupled between the encoders and the constant bit-rate channel. The control strategy includes analyzing the multiple streams of video to determine relative complexity thereof, encoding the multiple streams of video streams in parallel, and dynamically adapting encoding of at least one stream of the video frames based on the relative complexity of the video frames. The bit-rate for each stream of video frames is only changed at GOP boundaries, or if a scene change occurs. The calculated bit-rate is preferably further modified based on the buffer fullness. (See Abstract of Boroczky.)

Initially, Applicants sumbit that the final Office Action misinterprets the teachings of Boroczky. In Fig. 3 of Boroczky, multiple pre-processors 205 are shown each receiving a different program source (source 1, source 2 ... , source n). However, the final Office Action states "... each encoder to receive the sequence of video frames for encoding thereof (210, enc.

1-enc. n) ..." Therefore, Applicants respectfully submit that the Office Action misconstrues the teachings of Boroczky. As indicated in Fig. 3 thereof, each encoder receives a different delayed source of video frames. Thus, Boroczky does not teach Applicants' claimed invention, since Applicants recite, in part, in each independent claim that "each encoder receives the sequence of video frames for encoding thereof ..." In Applicants' invention, the sequence of video frames is fed to each encoder (i.e., the same sequence), as is clear from the language of the claims. No similar teaching or suggestion is provided by Boroczky. For at least this reason, Applicants request reconsideration and withdrawal of the anticipation rejection to their independent claims based on the teachings of Boroczky.

Still further, Applicants' independent claims recite, in part, means for automatically adapting an encode parameter in one or more of the encoders of the multiple encoders when no set of encode parameters of the sets of encode parameters employed by the multiple encoders produces an encoded result which meets the encode objective. A careful reading of Boroczky fails to uncover any similar teaching or suggestion. Notwithstanding this, the final Office Action points to Fig. 5 of Boroczky, and in particular, step 390 as allegedly teaching Applicants' recited functionality. This characterization of the teachings of Boroczky is respectfully traversed. Step 390 of Fig. 5 of Boroczky merely determines whether the current frame is at a GOP boundary of the stream of video frames being encoded at encoder ENC i (see column 14, lines 35-46). This functionality has no relevance to Applicants' claimed processing of the independent claims. There is no determination in Boroczky that no sets of the encode parameters employed in the parallel encoding of the same stream of video frames fails to provide an encoded result which meets an encode objective. Absent such consideration, Applicants respectfully submit that Boroczky cannot anticipate or even render obvious the functionality recited in the independent claims presented. For this additional reason, reconsideration and withdrawal of the anticipation rejection to the independent claims based on Boroczky is respectfully requested. There is no automatic adaptation of an encode parameter in Boroczky conditioned on one or more encoders of multiple encoders encoding the same stream of video data failing to produce an encoded result which meets an encode objective.

Still further, Applicants respectfully submit that Boroczky lacks any teaching, suggestion or incentive for its further modification as necessary to achieve Applicants' recited invention. The express purpose of the Boroczky patent is to dynamically encode multiple streams of video data in parallel for multiplexing onto a constant bit-rate channel. In contrast, Applicants' invention involves encoding in parallel <u>the sequence</u> of video frames, wherein each encoder of the multiple encoders employs a set of encode parameters to differently encode the sequence (with at least one encode parameter of the sets of encode parameters is varied between two or more encoders of the multiple encoders connected in parallel). Thus, to modify Boroczky to achieve Applicants' claimed invention would be contrary to the intended purpose of the Boroczky patent.

Yet further, various characterizations of the teachings of Boroczky provided in the final Office Action provide no technical basis outside that contained in Applicants' own specification. As noted above, various characterizations of the teachings of Boroczky in particular merely assert the language of Applicants' invention in hindsight. Thus, the rejection violates the well-known principle that Applicants' own disclosure cannot be used as a reference against them.

Additionally, the final Office Action provides no rationale for rejecting dependent claims 2-16, 19-30 & 33-38 based upon Boroczky. Thus, Applicants respectfully submit that the final Office Action fails to state a *prima facie* case of anticipation against these claims. This is yet another, independent reason why the rejection should be reconsidered and withdrawn.

In summary, Applicants traverse the rejection of the independent claims based on the misinterpretation of the Boroczky patent, the lack of a teaching or suggestion of their invention in the Boroczky patent, the lack of an actual teaching, suggestion or incentive in the art for the modifications necessary to achieve their invention, the use of Applicants' own disclosure and results as a basis for the alleged modifications, and the lack of a *prima facie* case of anticipation being stated in the final Office Action against Applicants' dependent claims 2-16, 19-30 & 33-38. For all of these reasons, Applicants respectfully request reconsideration and withdrawal of the anticipation rejection to the claims at issue based on Boroczky.

In the final Office Action, claims 1-12, 18-27 & 32-38 were rejected under 35 U.S.C. §102(b) as being anticipated by Suzuki (U.S. Patent No. 5,850,527; hereinafter Suzuki). This is rejection is respectfully, but most strenuously, traversed and reconsideration thereof is requested.

Suzuki discloses an information providing apparatus which identifies a transmission enabled band of a transmission line and selects information conforming to the band, thereby effectively utilizing the transmission band of the transmission line.

Applicants respectfully submit that a careful reading of Suzuki fails to uncover any discussion or suggestion of a mechanism for automatically adapting an encode parameter of one or more encoders of multiple parallel connected encoders when no set of the encode parameters produces an encoded result which meets the encode objective. In this regard, the final Office Action again references band detection unit 9a of Fig. 5 of Suzuki, as well as the "detecting unit" of Fig. 19. These characterizations of the teachings of Suzuki are respectfully traversed.

Relative to Applicants' automatically adapting, the final Office Action states:

> "... S2 of Fig. 19, e.g., the line seizing is automatically feedback to the step S1 when there is no line seizing."

Figure 19 of Suzuki is described at column 15, line 66 – column 16, line 54. Specifically, Suzuki teaches (in part):

> Figs. 19 & 20 are flowcharts showing the procedure of, in the case where the transmission lines in Fig. 5 are changeable lines, indicating to a user program which can be provided in accordance with the state of the bands of the lines by the control unit 5, and providing one of the programs. In the flowcharts, the operations of the user conducted on the terminal device are also shown. The control unit 5 always monitors the lines in order to provide a program to a user (step S1). The user seizes a line in order to inquire whether an appropriate program is available. The control unit 5 judges whether the user seizes a line or not (step S2). If NO, the process returns to step S1. If YES, the transmission band management table is referred to (step S3), and an available band is detected by subtracting the occupied band from the transmission band of the line so as to judge whether the available band exists or not from the subtraction result (step S4) ...

Thus, line seizing in Suzuki refers to a user seizing a line in order to inquire whether an appropriate program is available. This teaching has no relevance to Applicants' recited automatic adaptation conditioned on the functionality recited in the independent claims. In Applicants' approach, there is an automatic adaptation of one or more encode parameters of one or more sets of encode parameters employed by the multiple parallel connected encoders <u>when</u> no set of encode parameters produces an encoded result which meets the defined encode objective. The band detection unit 9a in Suzuki and the line seizing of Fig. 19 do not relate to adaptation of an encode parameter *per se*, let alone to automatic adaptation conditioned as recited by Applicants in the independent claims presented. The band detection unit 9a is connected to transmission line 6a through 6j to detect bands of signals under transmission in the transmission lines, and then supply the information to the control unit 5 (see column 8, lines 57-60 of Suzuki, as well as column 11, lines 7-10). This detecting means does not relate to, nor does it suggest, Applicants' recited functionality for automatically adapting one or more encode parameters in a set of encode parameters employed in the multiple parallel connected encoders.

Further, Applicants respectfully submit that Suzuki teaches away from any automatic adaptation of the encode parameters by teaching that the encoders 71, 72 through 7m (to which the reproduced information is supplied) are compressing units compressing the information to be provided, and compress the supplied information at a <u>predetermined</u> compressing rate or by a <u>predetermined</u> compression method (see column 8, lines 30-35 of Suzuki). Since the compression rate and compression method are both predetermined, there can be no automatic adaptation of an encode parameter employed by one or more of the multiple parallel connected encoders 71, 72, 7m.

For at least the above reasons, Applicants respectfully submit that the claims presented patentably distinguish over the teachings of Suzuki. Reconsideration and withdrawal of the anticipation rejection based thereon is therefore requested.
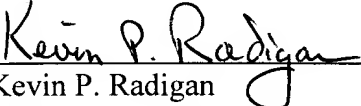
<u>35 U.S.C. §103(a):</u>

Dependent claims 13-16 & 28-30 were also rejected under 35 U.S.C. §103(a) as being unpatentable over Suzuki as applied to claims 1, 12, 18 & 27, and further in view of Park et al. (U.S. Patent No. 5,528,628; hereinafter Park). This rejection is respectfully traversed, and reconsideration thereof is requested.

The final Office Action notes that Suzuki does not teach multiple buffers, and each buffer comprises memory for storing encoded video data comprising at least one encoded frame of the sequence of video frames as switching between the buffered encoded video data to provide a subsystem encoder as recited by Applicants in these dependent claims. To address this deficiency, the teachings of Park are cited. Without acquiescing to the characterizations of the teachings of Park, it is noted that the Park patent does not address the above-noted deficiencies of Suzuki when applied against the independent claims at issue. Thus, these dependent claims are believed allowable for the same reasons noted above with respect to the independent claims from which they directly, or ultimately depend. Reconsideration and withdrawal of the obviousness rejection thereto is therefore respectfully requested.

Applicants' undersigned attorney is available should the Examiner wish to discuss this application further.

The application is believed to be in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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